

**REMARKS**

In this Amendment, Applicants have amended the specification, page 2, to correct an obvious error in the structure of the compound disclosed in a reference, i.e., Makromol. Chem., Vol. 193 (1992). This amendment is supported by Makromol. Chem., Vol. 193 (1992), for example, at page 779.

Applicants have also amended to correct an obvious error in the structure of the general formula (I) appeared on page 3 of the specification, in claim 1 and in the Abstract. This amendment is supported by the specification, for example, in Examples 1-8. Specifically, each of the compounds in Examples was synthesized from a cholic acid derivative (deoxycholic acid in Examples 1 and 2, cholic acid in Examples 3 and 4, chenocholic acid in Examples 5 and 6, and lithocholic acid in Examples 7 and 8) which has the 5 $\beta$ -cholanic acid skeleton. Accordingly, one skilled in the art would realize the error and understand that the configuration at 5-position should be  $\beta$ .

No new matter has been added and entry of the Amendment is respectfully requested. Upon entry of the Amendment, claims 1-3 and 5-9 will be all the claims pending in the application.

Claim 1 remained rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Ahlheim et al for the same reasons as set forth in the previous Office Action.

Applicants respectfully traverse the rejection because the present invention is not *prima facie* obvious over Ahlheim et al, and also the present invention provides unexpectedly superior results as compared with Ahlheim et al.

AMENDMENT UNDER 37 C.F.R. § 1.116  
U.S. Appln. No. 09/275,941

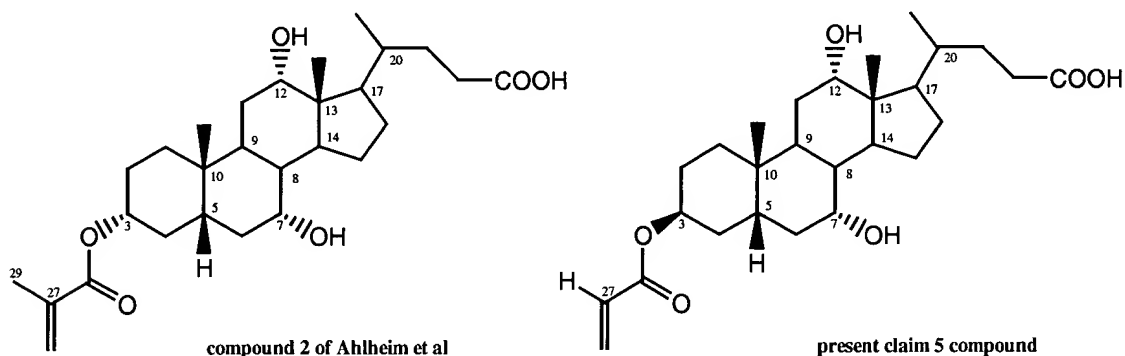
Applicants respectfully traverse the Examiner's assertion that the issue of stereoisomers is irrelevant because the claims are not directed to the matter of the stereoisomer, but the compounds.

In the present application, the claims are directed to the compounds represented by general formula (I), where the configurations at various positions (at least at C-3, C-5, C-7, C-10, C-12, and C-13) are specifically depicted. Accordingly, the scope of the present claims is limited to only the stereoisomers represented by the formula defined in the claims.

Applicants respectfully traverse the Examiner's assertion that Mr. Sato's Declaration Under 37 C.F.R. § 1.132 filed on April 18, 2002, is not a formal Declaration, but an opinion, because Mr. Sato's conclusion that the monomer compound of the present invention can be polymerized to obtain a resin and allows control of the molecular weight of the resin is clearly supported by experimental data as shown at page 2 of Mr. Sato's Declaration.

Nonetheless, Applicants attach herewith an unexecuted Declaration Under 37 C.F.R. § 1.132 by Mr. Sato, showing unexpected superior results in a side-by-side comparison table, as suggested by the Examiner. The executed Declaration will be submitted when available.

Ahlheim et al disclose radically polymerizable derivatives of cholic acid containing a methacrylic group (abstract). Among these compounds, the closest example to the presently claimed compound, specifically, the present claim 5 compound, is Ahlheim et al compound 2.

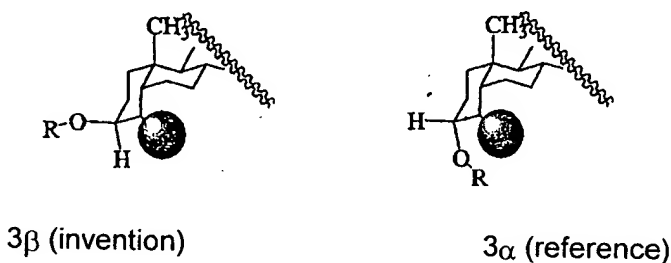


As conceded by the Examiner, there are two differences between the present claim 5 compound and compound 2 of Ahlheim et al, i.e., R<sub>3</sub> being hydrogen instead of methyl and the opposite configuration at the C-3 position.

As is clear from Table in Mr. Sato's Declaration Under 37 C.F.R. § 1.132, the difference in configuration at the 3-position leads to the difference in results. That is, the monomer compound of the present invention can be polymerized to obtain a resin and enables to control the molecular weight of the resin. In contrast, the monomer compound of Ahlheim et al, which has a different structure from the monomer compound of the present invention, cannot be polymerized and the resin cannot be obtained. There is nothing in Ahlheim et al. which would cause one of ordinary skill in the art to expect the superior results obtained with the compounds of the present invention.

Thus, Applicants have compared the closest embodiment of their invention (that is, the compound of present claim 5) to the closest prior art (that is, compound 2 at page 781 of Ahlheim et al.), and showed that the present invention provides unexpectedly superior results in comparison to the prior art.

Further, Applicants respectfully submit that the configuration at the 3-position has a significant effect on the reactivity of the compounds, i.e., the reactivity of 3 $\alpha$ -hydroxymethacrylate ester in Ahlheim et al differs greatly from that of 3 $\beta$ -hydroxyacrylate ester and 3 $\beta$ -hydroxymethacrylate ester in the present invention. Applicants found that the compounds in the 3 $\alpha$ -form have a lower reactivity. Applicants believe that the steric exclusion due to adjacent methylene structure at the 2- and 4-positions contributes to the low reactivity.



Still further, the difference between 3 $\beta$  and 3 $\alpha$  compounds is very enormous from a technological point of view.

In view of the above, the present invention is not obvious over Ahlheim et al, and thus, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 2-3 and 5-9 remained objected to.

Applicants respectfully submit that claims 2-3 and 5-9 are allowable since the §103 rejection of claim 1 would be overcome by Applicants' arguments discussed above. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the objection.

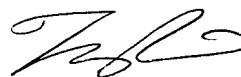
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

AMENDMENT UNDER 37 C.F.R. § 1.116  
U.S. Appln. No. 09/275,941

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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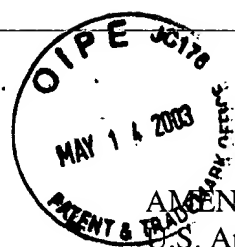
WASHINGTON OFFICE



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PATENT TRADEMARK OFFICE

Date: May 14, 2003



AMENDMENT UNDER 37 C.F.R. § 1.116  
U.S. Appln. No. 09/275,941

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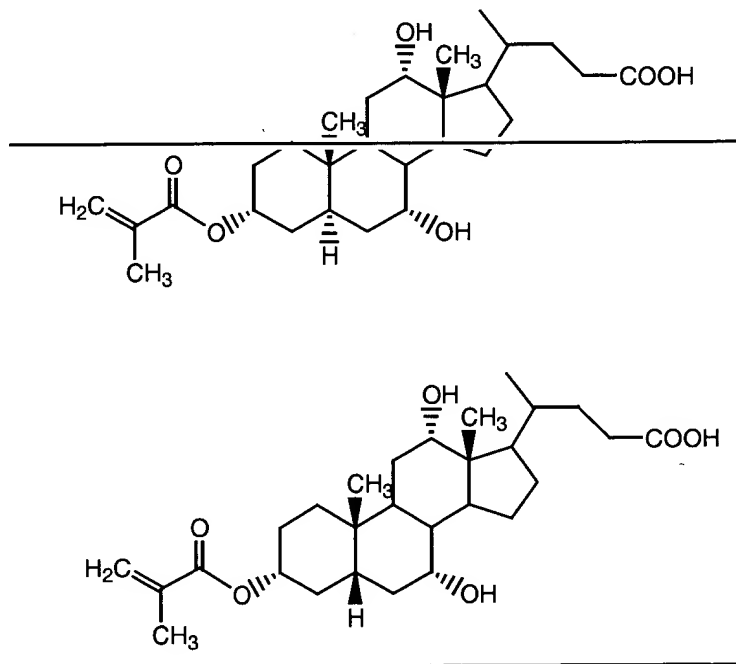
**APPENDIX**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

**The specification is changed as follows:**

**At page 2, the 1<sup>st</sup> full paragraph:**

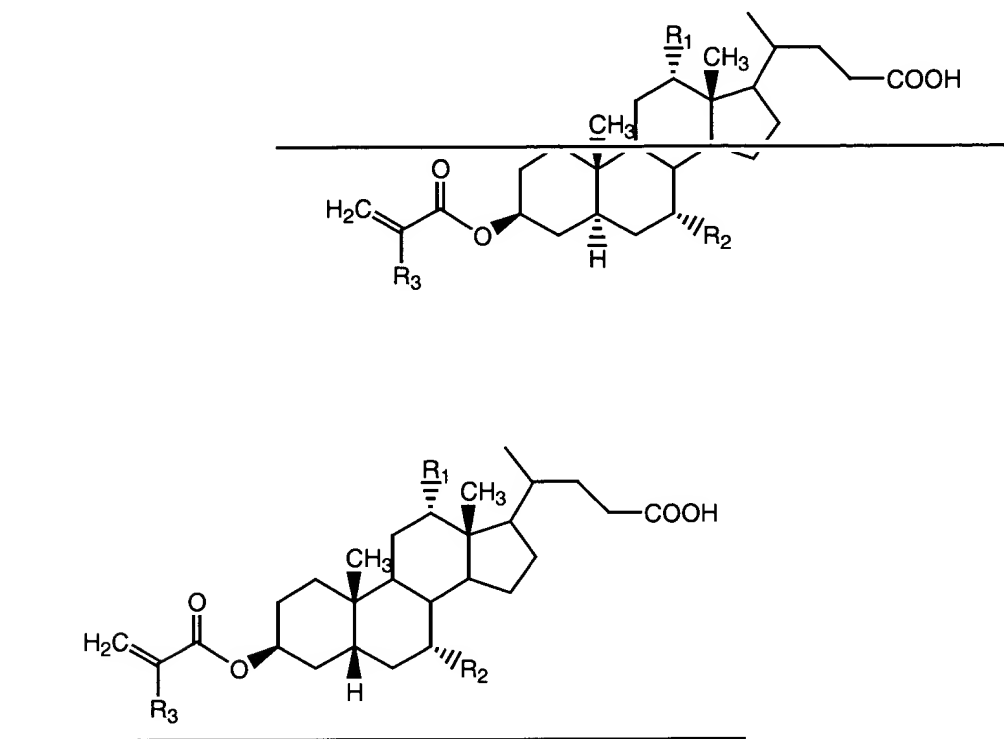
Further, Makromol. Chem., Vol. 193, page 779 (1992) describes a methacrylic acid ester compound containing an alicyclic group having the following structure:



**At page 3, the 3<sup>rd</sup> full paragraph:**

The present invention has the following constitution:

A (meth)acrylic acid ester compound represented by the following general formula (I):

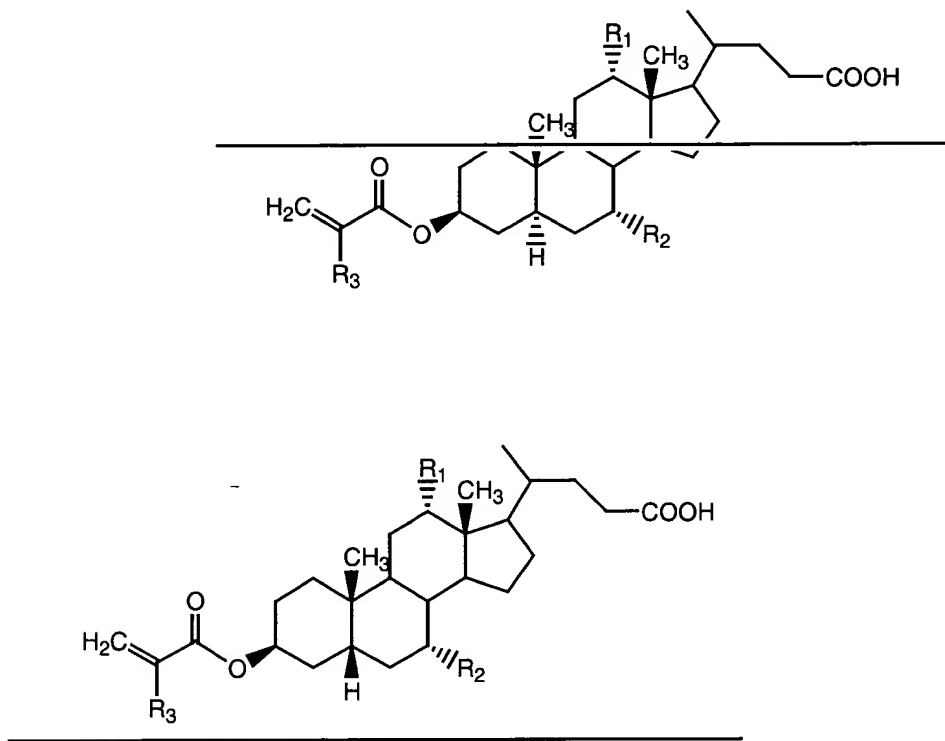


wherein R<sub>1</sub> and R<sub>2</sub> each independently represent a hydrogen atom or a hydroxyl group; and R<sub>3</sub> represents a hydrogen atom or a methyl group.

**IN THE CLAIMS:**

**The claims are amended as follows:**

1. (Amended) A (meth)acrylic acid ester compound represented by the following general formula (I):



wherein R<sub>1</sub> and R<sub>2</sub> each independently represent a hydrogen atom or a hydroxyl group; and R<sub>3</sub> represents a hydrogen atom or a methyl group.

**IN THE ABSTRACT OF DISCLOSURE:**

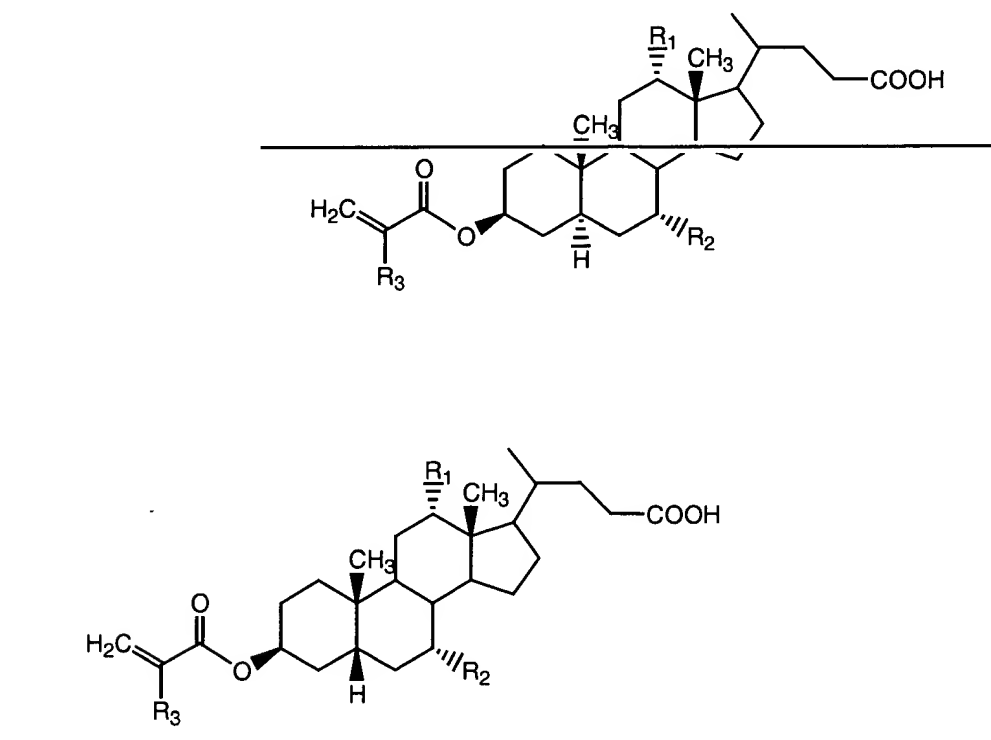
**The abstract is changed as follows:**

### ABSTRACT OF THE DISCLOSURE

The present invention provides a novel (meth)acrylic acid ester compound useful as a resin material for photosensitive compositions, which enables control of the molecular weight of a resin to be prepared. The novel (meth)acrylic acid ester compound is one represented by the following formula (I):



AMENDMENT UNDER 37 C.F.R. § 1.116  
U.S. Appln. No. 09/275,941



wherein R<sub>1</sub> and R<sub>2</sub> each independently represent a hydrogen atom or a hydroxyl group; and R<sub>3</sub> represents a hydrogen atom or a methyl group.



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: :  
Kenichiro Sato et al. : Group Art Unit: 1623  
Appln. No.: 09/275,941 : Examiner: OH, TAYLOR V  
Filed: March 25, 1999 :  
For: NOVEL (METH)ACRYLIC ACID ESTER COMPOUND

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, Kenichiro Sato, do declare and state as follows:

I am a citizen of Japan.

I graduated from Osaka University, Faculty of Engineering, Course of Applied Fine Chemistry in March 1992.

Since April 1992 I have been employed by Fuji Photo Film Co., Ltd. and have been engaged in research and development of photoresist photosensitive materials for semiconductors at the Yoshida-Minami Factory Research Division of the company.

I am a co-inventor of the invention described and claimed in the above-named application, and I am familiar with the subject matter disclosed by the application as well as the Office Action dated January 14, 2003 concerning the application.

In order to demonstrate the unexpected superiority of the present invention, the following experimentation was conducted by me or under my supervision.

### EXPERIMENTATION

#### Synthesis of the resin using the monomer compound of the present invention (the monomer compound of claim 5)

9.2 of the monomer compound of claim 5 of the present invention, 250 mg of a radical polymerization initiator V-65 (manufactured by Wako Pure Chemical Industries, Ltd.) and 30 mg of mercaptoacetic acid were dissolved in a mixture of 29 g of N,N-dimethylacetoamide and 4 g of tetrahydrofuran. The mixture was then added dropwise with a drop time of 4 hours to 4 g of N,N-dimethylacetoamide heated to 60 °C, under a nitrogen atmosphere. The solution was heated and stirred over 4 hours and after the solution was cooled to a room temperature, the solution was charged into 1 liter of distilled water, and thus 8.9 g of the target resin was recovered in a white color powder form. The resin had a weight-average molecular weight of 16,000 in polystyrene conversion.

#### Synthesis of the resin using the monomer compound 2 of Makromol. Chem. 193(3), pp. 779 to 797 (Ahlheim et al)

The monomer compound 2 described at the top of page 781 of Makromol. Chem. 193(3) was prepared and then polymerization was attempt in the same conditions as the above. The monomer compound was unchanged as it was and recovered.

The results above are arranged in Table below.

TABLE

	Monomer (g)	Resin (g)	Mw *
Invention	Monomer of claim 5 (9.2)	8.9	16,000
Ahlheim et al	Monomer compound 2 (9.2)	—	—

Mw \*: Weight-average molecular weight (in polystyrene conversion)

As is apparent from the results above, the monomer compound of the present invention can be polymerized to obtain a resin and enables to control a molecular weight of a resin. The monomer compound of Ahlheim et al that has a different structure from the monomer compound of the present invention cannot be polymerized and the resin cannot be obtained from the monomer. As is apparent from the above, the monomer compound of the present invention has a specified effect.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectively submitted,

Date: \_\_\_\_\_

\_\_\_\_\_  
Kenichiro Sato